CLAIMS

1. A method of directing access terminals that are power controlled by a sector of a base station to change data rates in reverse link communications from the access terminals to the base station, the method comprising:

determining an effective noise power spectral density ($N_{t,i,effective}$) at an access network for one of the access terminals (i) due to a thermal noise power spectral density (N_0) and a sum of chip energy of (E_c) of all channels except pilot channels of at least some of the access terminals that are power controlled by the sector;

determining a maximum effective noise power spectral density ($N_{t,max,effective}$) among the access terminals; and

determining a reverse activity bit (RAB) to signal all of the access terminals that are power controlled by the sector to change the data rates based upon the maximum effective noise power spectral density.

2. The method of claim 1, further comprising the step of determining whether any of the access terminals contributes a significant load to the sector.

3. The method of claim 2, wherein the step of determining whether any of the access terminals contributes a significant load to the sector comprises the step of determining whether the sector is included in an active set by the access terminal.

4. The method of claim 3, wherein the step of determining whether any of the access terminals contributes a significant load to the sector further comprises the step of computing a filtered ratio of pilot chip energy to the effective noise power spectral density (E_{cp}/N_t) per antenna for the access terminal.

5. The method of claim 4, wherein the step of determining whether any of the access terminals contributes a significant load to the sector further comprises the steps of:

determining whether the E_{cp}/N_t per antenna of the access terminal is below a predetermined setpoint by more than a predetermined offset; and

ignoring the access terminal if the E_{cp}/N_t per antenna of the access terminal is below the predetermined setpoint by more than the predetermined offset.

6. The method of claim 1, wherein the step of determining a maximum effective noise power spectral density ($N_{t,max,effective}$) comprises the step of computing a ratio of the maximum effective noise power spectral density to a thermal noise power spectral density ($N_{t,max,effective}/N_0$).

7. The method of claim 6, wherein the step of determining a reverse activity bit (RAB) to signal all of the access terminals that are power controlled by the sector to change the data rates comprises the step of setting the RAB to 1 if the $N_{t,max,effective}/N_0$ is greater than a predetermined $N_{t,max,effective}/N_0$ threshold.

8. The method of claim 1, wherein the step of determining a reverse activity bit (RAB) to signal all of the access terminals that are power controlled by the sector to change the data rates comprises the step of setting the RAB to 1 if a rise-over-thermal (ROT) ratio is greater than a predetermined ROT threshold regardless of whether the $N_{t,max,effective}/N_0$ is greater than a predetermined $N_{t,max,effective}/N_0$ threshold.

9. The method of claim 1, further comprising the steps of:

determining whether only one access terminal that is power controlled by the sector is active; and

setting the RAB to 0 if only one access terminal that is power controlled by the sector is active and a rise-over-thermal (ROT) ratio is less than a predetermined ROT threshold.

10. A method of directing access terminals that are power controlled by a sector of a base station to change data rates in reverse link communications from the access terminals to the base station, the method comprising:

determining whether any of the access terminals contributes a significant load to the sector;

determining a maximum noise power spectral density ($N_{t,max}$) among the access terminals that contribute a significant load to the sector; and

determining a reverse activity bit (RAB) to signal all of the access terminals that are power controlled by the sector to change the data rates based upon the maximum noise power spectral density.

11. The method of claim 10, wherein the step of determining whether any of the access terminals contributes a significant load to the sector comprises the step of determining whether the sector is included in an active set by the access terminal.

12. The method of claim 11, wherein the step of determining whether any of the access terminals contributes a significant load to the sector further comprises the step of computing a filtered ratio of pilot chip energy to an effective noise power spectral density (E_{cp}/N_t) per antenna for the access terminal.

13. The method of claim 12, wherein the step of determining whether any of the access terminals contributes a significant load to the sector further comprises the steps of:

determining whether the E_{cp}/N_t per antenna of the access terminal is below a predetermined setpoint by more than a predetermined offset; and

ignoring the access terminal if the E_{cp}/N_t per antenna of the access terminal is below the predetermined setpoint by more than the predetermined offset.

14. The method of claim 10, wherein the step of determining whether any of the access terminals contributes a significant load to the sector comprises the steps of:

determining whether a data request channel lock (DRCLock) of the access terminal is unset; and

ignoring the access terminal if the DRCLock of the access terminal is unset.

15. The method of claim 10, wherein the step of determining whether any of the access terminals contributes a significant load to the sector comprises the steps of:

determining whether a filtered path loss from the access terminal to the base station is above a predetermined threshold; and

ignoring the access terminal if the filtered path loss from the access terminal to the base station is above the predetermined threshold.

16. The method of claim 10, wherein the step of determining a maximum noise power spectral density ($N_{t,max}$) comprises the steps of:

determining a minimum chip energy ($E_{c,min}$) among the access terminals that contribute a significant load to the sector;

determining a total received power spectral density (I_0) at the base station; and

computing the maximum noise power spectral density by subtracting $E_{c,min}$ from I_0.

17. The method of claim 16, wherein the step of determining a maximum noise power spectral density ($N_{t,max}$) further comprises the step of computing a ratio of the maximum noise power spectral density to a thermal noise power spectral density ($N_{t,max}/N_0$).

18. The method of claim 17, wherein the step of determining a reverse activity bit (RAB) to signal all of the access terminals that are power controlled by the sector to change the data rates comprises the step of setting the RAB to 1 if the $N_{t,max}/N_0$ is greater than a predetermined threshold.

19. The method of claim 10, wherein the step of determining a reverse activity bit (RAB) to signal all of the access terminals that are power controlled by the sector to change the data rates comprises the step of setting the RAB to 1 if a rise-over-thermal (ROT) ratio is greater than a predetermined threshold.

20. The method of claim 10, further comprising the steps of:

determining whether only one access terminal that is power controlled by the sector is active; and

setting the RAB to 0 if only one access terminal that is power controlled by the sector is active.

21. A base station apparatus, comprising:

means for determining an effective noise power spectral density ($N_{t,i,effective}$) for one of the access terminals (i) due to a thermal noise power spectral density (N_0) and a sum of chip energy of (E_c) of all channels except pilot channels of at least some of the access terminals that are power controlled by a sector of the base station;

means for determining a maximum effective noise power spectral density ($N_{t,max,effective}$) among the access terminals; and

means for determining a reverse activity bit (RAB) to signal all of the access terminals that are power controlled by the sector to change data rates based upon the maximum effective noise power spectral density.

22. The apparatus of claim 21, further comprising means for determining whether any of the access terminals contributes a significant load to the sector.

23. The apparatus of claim 22, wherein the means for determining whether any of the access terminals contributes a significant load to the sector comprises means for determining whether the sector is included in an active set by the access terminal.

24. The apparatus of claim 23, wherein the means for determining whether any of the access terminals contributes a significant load to the sector further comprises means for computing a filtered ratio of pilot chip energy to the effective noise power spectral density (E_{cp}/N_t) per antenna for the access terminal.

25. The apparatus of claim 24, wherein the means for determining whether any of the access terminals contributes a significant load to the sector further comprises:

means for determining whether the E_{cp}/N_t per antenna of the access terminal is below a predetermined setpoint by more than a predetermined offset; and

means for ignoring the access terminal if the E_{cp}/N_t per antenna of the access terminal is below the predetermined setpoint by more than the predetermined offset.

26. The apparatus of claim 21, wherein the means for determining a maximum effective noise power spectral density ($N_{t,max,effective}$) comprises means for computing a ratio of the maximum effective noise power spectral density to a thermal noise power spectral density ($N_{t,max,effective}/N_0$).

27. The apparatus of claim 26, wherein the means for determining a reverse activity bit (RAB) to signal all of the access terminals that are power controlled by the sector to change data rates comprises means for setting the RAB to 1 if the $N_{t,max,effective}/N_0$ is greater than a predetermined $N_{t,max,effective}/N_0$ threshold.

28. The apparatus of claim 21, wherein the means for determining a reverse activity bit (RAB) to signal all of the access terminals that are power controlled by the sector to change data rates comprises means for setting the RAB to 1 if a rise-over-thermal (ROT) ratio is greater than a predetermined ROT threshold regardless of whether the $N_{t,max,effective}/N_0$ is greater than a predetermined $N_{t,max,effective}/N_0$ threshold.

29. The apparatus of claim 21, further comprising:

means for determining whether only one access terminal that is power controlled by the sector is active; and

means for setting the RAB to 0 if only one access terminal that is power controlled by the sector is active and a rise-over-thermal (ROT) ratio is less than a predetermined ROT threshold.

30. A base station apparatus, comprising:

means for determining whether any of a plurality of access terminals contributes a significant load to a given sector of the base station;

means for determining a maximum noise power spectral density ($N_{t,max}$) among the access terminals that contribute a significant load to the sector; and

means for determining a reverse activity bit (RAB) to signal all of the access terminals that are power controlled by the sector to change data rates based upon the maximum noise power spectral density.

31. The apparatus of claim 30, wherein the means for determining whether any of the access terminals contributes a significant load to the sector comprises means for determining whether the sector is included in an active set by the access terminal.

32. The apparatus of claim 31, wherein the means for determining whether any of the access terminals contributes a significant load to the sector further comprises means for computing a filtered ratio of pilot chip energy to an effective noise power spectral density (E_{cp}/N_t) per antenna for the access terminal.

33. The apparatus of claim 32, wherein the means for determining whether any of the access terminals contributes a significant load to the sector further comprises:

means for determining whether the E_{cp}/N_t per antenna of the access terminal is below a predetermined setpoint by more than a predetermined offset; and

means for ignoring the access terminal if the E_{cp}/N_t per antenna of the access terminal is below the predetermined setpoint by more than the predetermined offset.

34. The apparatus of claim 30, wherein the means for determining whether any of the access terminals contributes a significant load to the sector comprises:

means for determining whether a data request channel lock (DRCLock) of the access terminal is unset; and

means for ignoring the access terminal if the DRCLock of the access terminal is unset.

35. The apparatus of claim 30, wherein the means for determining whether any of the access terminals contributes a significant load to the sector comprises:

means for determining whether a filtered path loss from the access terminal to the base station is above a predetermined threshold; and

means for ignoring the access terminal if the filtered path loss from the access terminal to the base station is above the predetermined threshold.

36. The apparatus of claim 30, wherein the means for determining a maximum noise power spectral density ($N_{t,max}$) comprises:

means for determining a minimum chip energy ($E_{c,min}$) among the access terminals that contribute a significant load to the sector;

means for determining a total received power spectral density (I_0) at the base station; and

means for computing the maximum noise power spectral density by subtracting $E_{c,min}$ from I_0.

37. The apparatus of claim 36, wherein the means for determining a maximum noise power spectral density ($N_{t,max}$) further comprises means for computing a ratio of the maximum noise power spectral density to a thermal noise power spectral density ($N_{t,max}/N_0$).

38. The apparatus of claim 37, wherein the means for determining a reverse activity bit (RAB) to signal all of the access terminals that are power controlled by the sector to change data rates comprises means for setting the RAB to 1 if the $N_{t,max}/N_0$ is greater than a predetermined threshold.

39. The apparatus of claim 30, wherein the means for determining a reverse activity bit (RAB) to signal all of the access terminals that are power controlled by the sector to change data rates comprises means for setting the RAB to 1 if a rise-over-thermal (ROT) ratio is greater than a predetermined threshold.

40. The apparatus of claim 30, further comprising:

means for determining whether only one access terminal that is power controlled by the sector is active; and

means for setting the RAB to 0 if only one access terminal that is power controlled by the sector is active.

41. A computer readable medium containing computer executable instructions embodying a method of directing access terminals that are power controlled by a sector of a base station to change data rates in reverse link communications from the access terminals to the base station, the method comprising:

determining an effective noise power spectral density ($N_{t,i,effective}$) at an access network for one of the access terminals (i) due to a thermal noise power spectral density (N_0) and a sum of chip energy of (E_c) of all channels except pilot channels of at least some of the access terminals that are power controlled by the sector;

determining a maximum effective noise power spectral density ($N_{t,max,effective}$) among the access terminals; and

determining a reverse activity bit (RAB) to signal all of the access terminals that are power controlled by the sector to change the data rates based upon the maximum effective noise power spectral density.

42. The computer readable medium of claim 41, wherein the method further comprises the step of determining whether any of the access terminals contributes a significant load to the sector.

43. The computer readable medium of claim 42, wherein the step of determining whether any of the access terminals contributes a significant load to the sector comprises the step of determining whether the sector is included in an active set by the access terminal.

44. The computer readable medium of claim 43, wherein the step of determining whether any of the access terminals contributes a significant load to the sector further comprises the step of computing a filtered ratio of pilot chip energy to the effective noise power spectral density (E_{cp}/N_t) per antenna for the access terminal.

45. The computer readable medium of claim 44, wherein the step of determining whether any of the access terminals contributes a significant load to the sector further comprises the steps of:

determining whether the E_{cp}/N_t per antenna of the access terminal is below a predetermined setpoint by more than a predetermined offset; and

ignoring the access terminal if the E_{cp}/N_t per antenna of the access terminal is below the predetermined setpoint by more than the predetermined offset.

46. The computer readable medium of claim 41, wherein the step of determining a maximum effective noise power spectral density ($N_{t,max,effective}$) comprises the step of computing a ratio of the maximum effective noise power spectral density to a thermal noise power spectral density ($N_{t,max,j}/N_0$).

47. The computer readable medium of claim 46, wherein the step of determining a reverse activity bit (RAB) to signal all of the access terminals that are power controlled by the sector to change the data rates comprises the step of setting the RAB to 1 if the $N_{t,max,effective}/N_0$ is greater than a predetermined $N_{t,max,effective}/N_0$ threshold.

48. The computer readable medium of claim 41, wherein the step of determining a reverse activity bit (RAB) to signal all of the access terminals that are power controlled by the sector to change the data rates comprises the step of setting the RAB to 1 if a rise-over-thermal (ROT) ratio is greater than a predetermined ROT threshold regardless of whether the $N_{t,max,effective}/N_0$ is greater than a predetermined $N_{t,max,effective}/N_0$ threshold.

49. The computer readable medium of claim 41, wherein the method further comprises the steps of:

determining whether only one access terminal that is power controlled by the sector is active; and

setting the RAB to 0 if only one access terminal that is power controlled by the sector is active and a rise-over-thermal (ROT) ratio is less than a predetermined ROT threshold.

50. A computer readable medium containing computer executable instructions embodying a method of directing access terminals that are power controlled by a sector of a base station to change data rates in reverse link communications from the access terminals to the base station, the method comprising:

determining whether any of the access terminals contributes a significant load to the sector;

determining a maximum noise power spectral density ($N_{t,max}$) among the access terminals that contribute a significant load to the sector; and

determining a reverse activity bit (RAB) to signal all of the access terminals that are power controlled by the sector to change the data rates based upon the maximum noise power spectral density.

51. The computer readable medium of claim 50, wherein the step of determining whether any of the access terminals contributes a significant load to the sector comprises the step of determining whether the sector is included in an active set by the access terminal.

52. The computer readable medium of claim 51, wherein the step of determining whether any of the access terminals contributes a significant load to the sector further comprises the step of computing a filtered ratio of pilot chip energy to an effective noise power spectral density (E_{cp}/N_t) per antenna for the access terminal.

53. The computer readable medium of claim 52, wherein the step of determining whether any of the access terminals contributes a significant load to the sector further comprises the steps of:

determining whether the E_{cp}/N_t per antenna of the access terminal is below a predetermined setpoint by more than a predetermined offset; and

ignoring the access terminal if the E_{cp}/N_t per antenna of the access terminal is below the predetermined setpoint by more than the predetermined offset.

54. The computer readable medium of claim 50, wherein the step of determining whether any of the access terminals contributes a significant load to the sector comprises the steps of:

determining whether a data request channel lock (DRCLock) of the access terminal is unset; and

ignoring the access terminal if the DRCLock of the access terminal is unset.

55. The computer readable medium of claim 50, wherein the step of determining whether any of the access terminals contributes a significant load to the sector comprises the steps of:

determining whether a filtered path loss from the access terminal to the base station is above a predetermined threshold; and

ignoring the access terminal if the filtered path loss from the access terminal to the base station is above the predetermined threshold.

56. The computer readable medium of claim 50, wherein the step of determining a maximum noise power spectral density ($N_{t,max}$) comprises the steps of:

determining a minimum chip energy ($E_{c,min}$) among the access terminals that contribute a significant load to the sector;

determining a total received power spectral density (I_0) at the base station; and

computing the maximum noise power spectral density by subtracting $E_{c,min}$ from I_0.

57. The computer readable medium of claim 56, wherein the step of determining a maximum noise power spectral density ($N_{t,max}$) further comprises the step of computing a ratio of the maximum noise power spectral density to a thermal noise power spectral density ($N_{t,max}/N_0$).

58. The computer readable medium of claim 57, wherein the step of determining a reverse activity bit (RAB) to signal all of the access terminals that are power controlled by the sector to change the data rates comprises the step of setting the RAB to 1 if the $N_{t,max}/N_0$ is greater than a predetermined threshold.

59. The computer readable medium of claim 50, wherein the step of determining a reverse activity bit (RAB) to signal all of the access terminals that are power controlled by the sector to change the data rates comprises the step of setting the RAB to 1 if a rise-over-thermal (ROT) ratio is greater than a predetermined threshold.

60. The computer readable medium of claim 50, wherein the method further comprises the steps of:

determining whether only one access terminal that is power controlled by the sector is active; and

setting the RAB to 0 if only one access terminal that is power controlled by the sector is active.